

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

Valid OMB Control Number. PLEASE DO NOT RETURN THIS FORM TO THE ABOVE ADDRESS.				
1. REPORT DATE (DD-MM-YYYY) 26-01-2004	2. REPORT TYPE Technical Viewgraph Presentation	3. DATES COVERED (From - To)		
4. TITLE AND SUBTITLE Attachment 5 to PRDA 04-01 PKT: AFRL/PRSS Electric Propulsion Facilities and Capabilities		5a. CONTRACT NUMBER		
		5b. GRANT NUMBER		
		5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) Frank Gulczinski (AFRL/PRSS)		5d. PROJECT NUMBER 5033		
		5e. TASK NUMBER 04AY		
		5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)		8. PERFORMING ORGANIZATION REPORT NUMBER AFRL-PR-ED-VG-2004-019		
Air Force Research Laboratory (AFMC) AFRL/PRSS 1 Ara Drive Edwards AFB CA 93524-7013		10. SPONSOR/MONITOR'S ACRONYM(S) AFRL-PR-ED-VG-2004-019		
Air Force Research Laboratory (AFMC) AFRL/PRS 5 Pollux Drive Edwards AFB CA 93524-7048				
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited.				
13. SUPPLEMENTARY NOTES For presentation to Federal Business Opportunities Website. Attachment to AFRL-PR-ED-VG-2004-015.				
14. ABSTRACT				
20040218 143				
15. SUBJECT TERMS				
16. SECURITY CLASSIFICATION OF:		17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Leilani Richardson
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified	A 5	19b. TELEPHONE NUMBER (include area code) (661) 275-5015

20040218 143

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:

17. LIMITATION OF ABSTRACT

**18. NUMBER
OF PAGES**

19a. NAME OF RESPONSIBLE PERSON

a. REPORT

b. ABSTRACT

c. THIS PAGE

A

5

19b. TELEPHONE NUMBER (include area code)
(661) 275-5015

Attachment 5 to PRDA 04-01-PKT:

**AFRL/PRSS Electric Propulsion
Facilities and Capabilities**

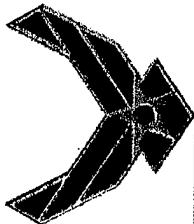


Frank Gulczinski

661-275-6796

frank.gulczinski@edwards.af.mil

Distribution Statement A – Approved for public release; distribution is unlimited.

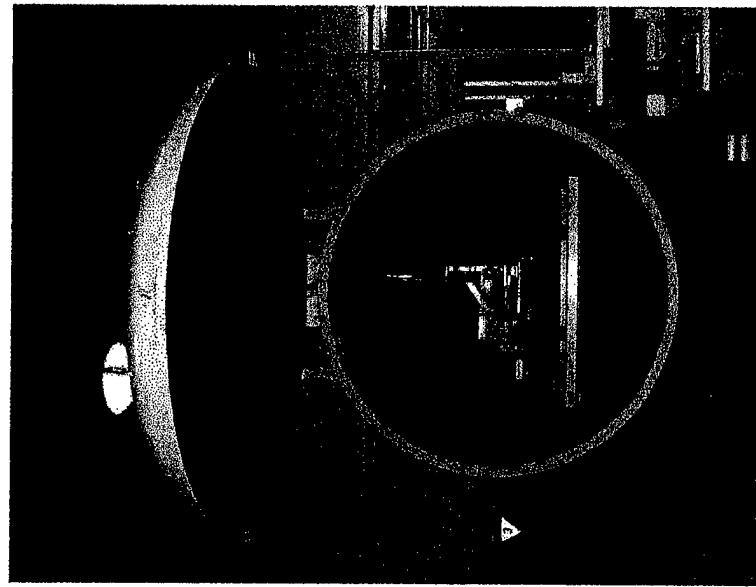


Laboratory Capabilities:

Electric propulsion development

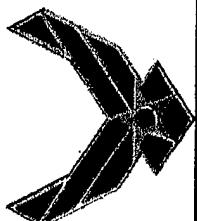
Chamber 2:

- micro-Newton thrust stand
 - Range: 10 micro-N to 200 micro-N
- Fully automated thruster operation
- Complete data acquisition system
- 2.8 m diameter, 4 m length
- Pumping speed 9,000 l/s (Xe)
 - Two 60 cm diffusion pumps
 - Large mechanical pump train
 - Base pressure: 1×10^{-6} torr



USED FOR: PPT's, micro-PPT's, small Hall effect thrusters

Distribution Statement A – Approved for public release; distribution is unlimited.

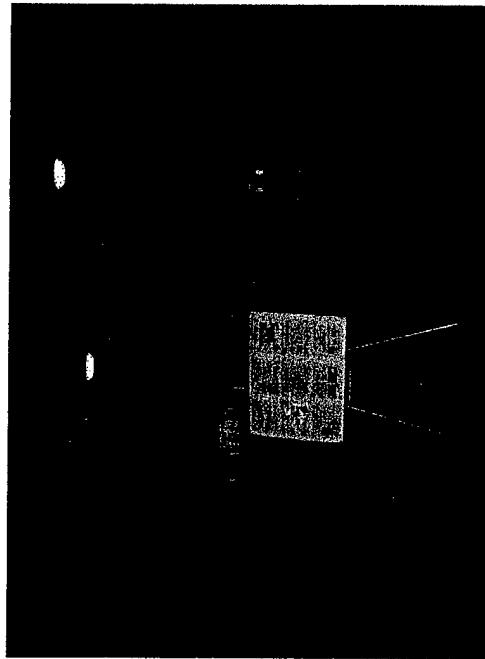


Laboratory Capabilities:

Electric propulsion development

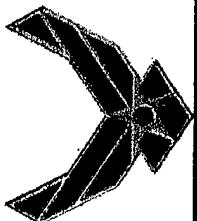
Chamber 3:

- milli-Newton thrust stand
 - Range: 0.01 N to 1 N
- Fully automated thruster operation
- Complete data acquisition system
- 3.2 m diameter, 10 m length
- Pumping speed 135,000 l/s (Xe)
 - Cryogenic panels
 - Base Pressure: 1×10^{-7} torr



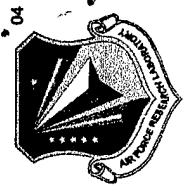
USED FOR: large Hall effect thrusters

Distribution Statement A – Approved for public release; distribution is unlimited.



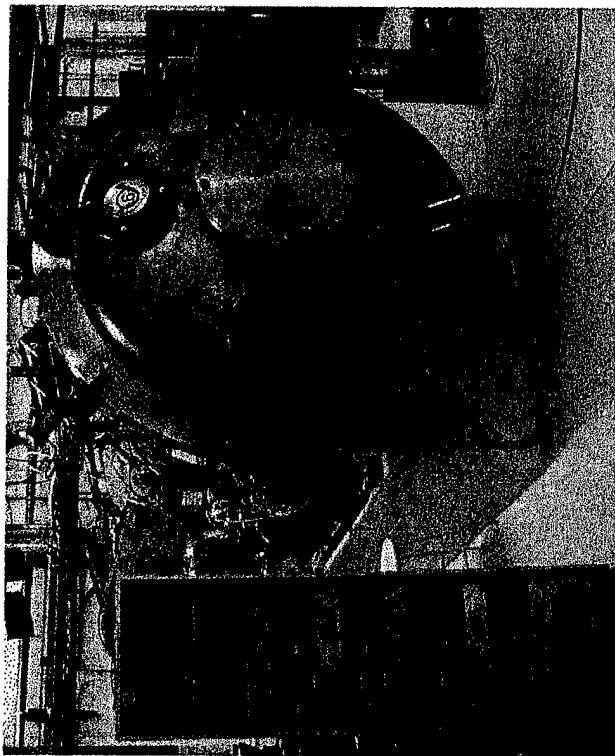
Laboratory Capabilities:

Electric propulsion development



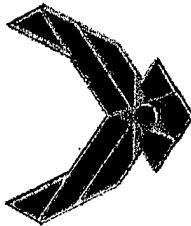
Chamber 6:

- Partially automated thruster operation(s)
- Complete data acquisition system
- 1.8 m diameter, 3 m length
- Pumping speed 32,000 l/s (Xe)
 - Cryogenic panels
 - Base pressure range: 1×10^{-7} torr



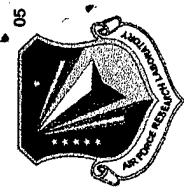
USED FOR: low to mid power Hall thrusters

Distribution Statement A – Approved for public release; distribution is unlimited.



Laboratory Capabilities:

Electric propulsion development



Chambers 8, 9 and 10:

- Fully automated thruster operation(s)
- Complete data acquisition system
- 0.5 m diameter, 1 m height
- Pumping speed 300 l/s (N_2)
 - 15 cm turbomolecular pump
 - Base pressure range: 1×10^{-6} torr



USED FOR: micro-PPT's, cathodes

Distribution Statement A – Approved for public release; distribution is unlimited.